



Indiana State Department of Health

Epidemiology Resource Center

***Clostridium difficile* Resource Manual**

Clostridium difficile (*C. difficile*) bacteria live in the intestinal tract of humans and other animals. People usually do not have symptoms of illness; however, *C. difficile* infection (CDI)* can result if the bacteria overgrow in the intestinal tract. Symptoms of infection are usually watery diarrhea and abdominal cramps, but serious complications can result that require hospitalization and on rare occasions cause death. Some people carry the bacteria without having symptoms.

C. difficile is the most frequent cause of health-care associated diarrhea. Antibiotic use is the primary risk factor for CDI because it disrupts normal bowel bacteria and allows *C. difficile* bacteria to overgrow. In recent years, an increase has been seen in the number of people with CDI who have no recent history of antibiotic use or hospitalization. This is considered to be community acquired CDI. Most people who develop CDI are elderly, have had a recent history of antibiotic use, and/or had been recently hospitalized. CDI is not a new disease, nor specific to any geographic location. Recently, a new strain of *C. difficile* has been identified that can cause more severe symptoms.

Proper prevention at all times is extremely important to prevent the spread of CDI. The following resource material includes information from the Indiana State Department of Health (ISDH), the Centers for Disease Control and Prevention (CDC), and other sources. This information may be helpful in reducing your risk of infection and providing health care personnel with the most current information on CDI.

* CDI is the terminology currently used for *C. difficile* infection. CDAD (*C. difficile* associated diarrhea) is an older term that may be found in earlier documents.

This manual is divided into six categories as indicated below. Click on the category of interest, and you will be directed to the resources available for that specific topic.

Inclusion of specific products within this CDI Resource Manual does not constitute an endorsement of any product or company by ISDH.

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General Information about *Clostridium difficile*

- [CDI *Clostridium difficile* Infection Patient Education Infection Prevention and Control](#)
- [*Clostridium difficile* \(C. diff\) Patient Information Sheet](#)
- [*Clostridium difficile* \(C. diff\) Patient Information Sheet-Spanish](#)
- [CDC General Information about *Clostridium difficile* Infections](#)
- [ISDH Fact Sheet on *Clostridium difficile*](#)

***Clostridium difficile* Information for Those Who Work in Healthcare Settings**

- [Clinical Practice Guidelines for *Clostridium difficile* Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America \(SHEA\) and the Infectious Disease Society of America \(IDSA\)](#)
- [*Clostridium difficile* and *Clostridium- difficile* Associated Disease Infection Control Guidelines for Long-Term Care Facilities](#)
- [Control of *Clostridium difficile* Infection \(CDI\) Outbreaks in Hospitals](#)
- [CDC Data & Statistics about CDI](#)
- [3M Environmental Control of *Clostridium difficile* Fact Sheet](#)
- [Guide to the Elimination of *Clostridium difficile* in Healthcare Settings – APIC](#)
- [CDC Information for Healthcare Providers](#)
- [Environmental service worker strategies](#)
- [Ohio State Department of Health Reporting of CDI -2006](#)
- [SHEA/IDSA Strategies to Prevent *CDI* in Acute Care Hospitals](#)
- [Effect of Hospital-Wide Chlorhexidine Patient Bathing on Healthcare-Associated Infections](#)
- [AHRQ Toolkit for Reduction of *CDI* through Antimicrobial Stewardship](#)

Antibiotic Resistance Facts and Resources

- [APIC Antibiotic resistance fact sheet](#)
- [C. diff Infections: What You Should Know When Taking Antibiotics, Poster](#)
- [Indiana Coalition for Antibiotic Resistance Education Strategies \(ICARES\)](#)
- [Anti-B's Coloring Sheet](#)
- [CDC, Get Smart](#)
- [ISDH Antibiotic Resistance Resource Manual](#)

Handwashing Facts and Resources

- [WHO Guidelines on Hand Hygiene in Health Care](#)
- [C. the DIFFerence Handwashing Can Make](#)
- [ISDH About....Hand Washing](#)
- [CDC Features -Wash Your Hands](#)
- [CDC The "Ounce of Prevention" Campaign](#)
- [SHEA Compendium, Rationale for Hand Hygiene Recommendations after caring for a Patient with CDI](#)

***Clostridium difficile* Journal Articles**

- Sunenshine, R.H., & McDonald, L.C. (2006). [*Clostridium difficile*-associated disease: New challenges from an established pathogen.](#) *Cleveland Clinic Journal of Medicine*, 73, 187-197.
- McDonald, L.C, Owings, M., & Jernigan, D.B. (2006). [*Clostridium difficile* Infection in Patients Discharged from U.S. Short-stay Hospitals, 1996–2003](#)
- McDonald LC, Owings M, Jernigan DB. [*Clostridium difficile* infection in patients discharged from US short-stay hospitals, 1996–2003.](#) *Emerg Infect Dis* [serial on the Internet]. 2006 Mar [2/21/2013].
- Centers for Disease Control and Prevention (2008). [*Surveillance for Community-Associated Clostridium difficile --- Connecticut, 2006,*](#) *MMWR*, 57(13);340-343.
- Centers for Disease Control and Prevention (2005). [*Severe Clostridium difficile--Associated Disease in Populations Previously at Low Risk – Four States, 2005*](#) *MMWR*, 54(47);1201-1205.
- Bomers, M.K., Agtmael, M.A., Luik, H. (2012). [*Using a Dog’s Superior Olfactory Sensitivity to Identify Clostridium difficile in Stools and Patients: Proof of Principle Study,*](#) *BMJ* 2012; 345
- Healthcare Cost and Utilization Project (2009). [*CDI in Hospital Stays*](#)
- Am J, M.F. (2012). [*“No Touch” Cleaning Technology Reduced Nosocomial C. difficile Rates.*](#) *Healio Infectious Disease News.*
- Dubberke, E.R. (2010). [*Prevention of Healthcare-Associated Clostridium difficile Infection: What Works?*](#) *Chicago Journals*, Vol. 31, S38-S41. Doi: 10.1086/655985
- Shenold, C. (2010). [*Clostridium difficile: The Newest Superbug Beats Out MRSA.*](#) *Infection Control Today.*
- [*Bugs without borders: Epidemics Spread as Bugs Acquire Resistance to Antibiotic*](#) (2012). *Homeland Security News Wire.*

- Waknine, Yael (2009). [FDA Approves Rapid DNA Test to Detect *Clostridium difficile* Infection](#). *Medscape Today News*.
- [Infectious Disease Specialists Surveyed on *C. difficile* Infection Treatment](#) (2010). *Infection Control Today*.
- [Recommendations Issued for Prevention of *C. difficile* Infection](#). *Medscape*. Jul 20, 2010.
- The American Academy of Pediatrics (2013). [*Clostridium difficile* Infection in Infants and Children](#). *Journal of the American Academy of Pediatrics*, Vol. 131, 196-200.

***Clostridium difficile* Presentations**

[Reducing the Burden of *Clostridium difficile* Infection \(CDI\): Spotlight on Populations at Risk](#)

Date: May 8, 2011

Estimated time: 2 hours

This virtual lecture is intended to assist physicians and registered nurses who are involved in the care of patients with *Clostridium difficile* infection (CDI).

[Clostridium difficile Infection: Tracking a Virulent Pathogen](#)

Date: 2009

Estimated time: 2 hours

The content for this podcast is derived from a live symposium held during the 2009 Association for Professionals in Infection Control and Epidemiology (APIC) Annual Conference. Consisting of four expert presentations and a panel question-and-answer session, this activity is designed to improve competence in the management of patients with *Clostridium difficile* infection.

[Clostridium difficile Infection in Primary Care: Tackling a Virulent Pathogen](#)

Date: November 8, 2008

Estimated time: N/A

The content for this virtual lecture is derived from a live symposium that was held during Pri-Med East on Saturday, November 8, 2008. This activity is designed to assist physicians in managing patients with *Clostridium difficile* infection.

[Clostridium difficile Infection in Long-Term Care: Tailored Approaches to Management](#)

Date: November 19, 2008

Estimated time: 1.5 hours

The content of this virtual lecture, for physicians, pharmacists, and nurses, is derived from a teleconference presented on November 19, 2008. This activity is intended to assist physicians, pharmacists, and nurses in understanding how to manage patients with *Clostridium difficile* infection (CDI) in the long-term care setting.

[Clostridium difficile: Changing Diagnosis, Epidemiology, and Treatment](#)

Date: April 7, 2008

Estimated time: 2 hours

The content of this virtual lecture, for physicians, pharmacists, and registered nurses, is derived from materials originally presented at a continuing education satellite symposium on Monday, April 7, 2008, in during- 18th Annual SHEA Scientific Meeting. This activity is intended to assist physicians, pharmacists, and registered nurses in understanding how to manage patients with *Clostridium difficile* infection.

[Clostridium difficile- Associated Disease: Guidelines and the Global Experience](#)

Date: October 5, 2007

Estimated time: 2.25 hours

The content of this virtual lecture is derived from materials originally presented at a continuing education satellite symposium on Friday, October 5, 2007, during 45th IDSA meeting. This activity is intended to assist clinicians and pharmacists in understanding how to manage patients with *Clostridium difficile*–associated disease (CDAD).

[Management of Clostridium difficile- Associated Disease in an Era of Increasing Virulence](#)

Date: April 18, 2007

Estimated time: N/A

The content of this virtual lecture, for physicians, is derived from materials originally presented at a continuing education satellite symposium on Wednesday, April 18, 2007, during American College of Physicians, Internal Medicine Meeting. This activity is intended to assist clinicians in understanding how to manage patients with *Clostridium difficile*–associated disease (CDAD).

[Clostridium difficile- Associated Disease in the Long-Term Care Setting: Identification, management and Infection Control Measures](#)

Date: October 2006

Estimated time: N/A

The content of this virtual lecture is derived from a series of six CME-certified teleconferences in October 2006. The teleconferences are directed toward medical directors, consultant pharmacists and registered nurses who work in long-term care settings and who are involved in the diagnosis, treatment and care of patients with *Clostridium difficile*-associated disease (CDAD). This activity is intended to assist these healthcare professionals in understanding how to manage patients with CDAD who require long-term care in the new era of increasing incidence and severity of *C. difficile* infection.

[Clostridium difficile Infection: Current Challenges and Controversies](#)

Date: October 25, 2008

Estimated time: 2.75 hours

The content of this virtual lecture for physicians, pharmacists, and registered nurses, is derived from materials originally presented at a continuing education satellite symposium on Saturday, October 25, 2008, during ICAAC/IDSA meeting. This activity is intended to assist physicians, pharmacists, nurses and other infectious disease specialists in understanding how to manage patients with *Clostridium difficile* infection.

[Interview with GI Experts: Discussions in Clostridium difficile](#)

Date: February 20, 2009

Estimated time: 1.5 hours

This podcast, consisting of three expert presentations and panel discussions, is designed to assist gastroenterologists in managing patients with *Clostridium difficile* infection.

[Fecal Transplants](#)

Date: August 27, 2012

Estimated time: 69 minutes

Presenter: Stephen Parodi, MD

This on-demand webinar describes the role of fecal bacteriotherapy in the treatment of refractory or relapsing *Clostridium difficile* disease.

[CDI: Best Practices for Prevention and Treatment in Long-Term Care Facilities](#)

Date: June, 23 2008

Estimated time: 1.5 hours

The content of this virtual lecture is derived from a symposium presented June 23, 2008 during the National Conference of The National Association Directors of Nursing Administration in Long Term Care (NADONA/LTC). This lecture provides information on prevention and treatment recommendations for long-term care facilities.

[Fecal Transplantation for C. difficile: A How-To Guide](#)

Date: N/A

Estimated time: 15 minutes

Today's topic is fecal microbiota transplantation (FMT). A new Current Procedural Terminology (CPT) code [44705, "Preparation of fecal microbiota for instillation, including assessment of donor specimen"] has been assigned to FMT. Biotransplantation has recently come on the scene as a gastrointestinal procedure that can make a meaningful difference in patients with chronic *Clostridium difficile* infection (CDI).

[*Clostridium difficile* Infection: Emerging Therapies and Recurrence Prevention](#)

Date: December 20, 2011

Estimated time: 2 hours

This presentation consists of a program overview, 3 presentations; panel Q&A, a Learning Assessment, and an Evaluation form. The content of this virtual lecture is derived from a symposium presented on October 22, 2011, in Boston, Massachusetts.

All information provided is intended for public use. This manual was last reviewed 3/5/13.